

Project Information Sheet

Project: New Bohemia Cultural District Solar Project

Location: Kuba Building, 1012 3rd St. SE, Cedar Rapids, Iowa

The New Bohemia Solar Project is collaboration between Iowa Renewable Energy Association, Alliant Energy, City of Cedar Rapids, Thorland Company, and the Iowa Department of Natural Resources. Primary funding was provided by the United States Department of Energy, with project partners also contributing funds. In the summer and fall of 2005, the partners installed the state's largest multi-configuration solar array system, interconnected with a major utility and featuring a street level real-time energy data educational kiosk. This was the highest rated solar project that the U.S. Department of Energy supported in its 2004 grant awards. The project partnership, **in accomplishing what had never been done before in Iowa**, highlighted the intrinsic value of environmental leadership, as well as the different partners' commitments to developing renewable energy and diversity of energy sources.

Iowa's energy needs are overwhelmingly provided for by imported fossil fuels. In fact, Iowa imports approximately 97 percent of its energy, with 56 cents of every dollar spent on energy leaving the state. Therefore, Iowa is highly susceptible to energy supply disruptions, price spikes, energy shortages, and loss of economic activity when, as now, energy becomes increasingly expensive. This is particularly critical in the context of Iowa's weather extremes, which increases the potential for serious and long-term energy problems. So, it is very important to Iowans that the state showcase, demonstrate, and coordinate the development of sustainable, environmentally safe, domestically produced solar energy. To achieve this, Iowa must educate the public on solar technology benefits, which should increase the adoption rate of those technologies. For example, the photovoltaic (PV) energy production curve is closely correlated to electricity demand curves. PV energy is most available in the hours and seasons when electric cooling loads are greatest.

Currently, indigenous renewable energy sources make up 3 percent of Iowa's total energy mix. However, according to the National Renewable Energy Laboratory, Des Moines, Iowa has the same annual amount of usable PV sunlight as Hilo, Hawaii. Despite the high availability of sunlight, solar applications make up less than .01 percent of Iowa's total energy mix.

The Cedar Rapids solar array is providing electricity to customers of Alliant Energy's "Second Nature Program," through a purchased power agreement – a first for the company. The array also serves as an educational tool and a visual symbol of the New Bohemia neighborhood's rebirth as one of the creative centers of Iowa's "Technology Corridor."

Another unique aspect of this project is the inclusion of three types of rack mounting systems that allow comparison between fixed, single, and dual tracking solar panel arrays (See diagram on back page). And the street level educational kiosk has a data capture program that allows separate display and comparison of real-time energy production, total energy production and avoided emissions per each mounting system.

The PV system was installed during two installation workshops. Using the voluntary labor of 28 local participants, these workshops reduced estimated installation costs by over \$10,000 and helped build a network of experienced local PV installers. Installing the PV system in this way benefited business, the public and utilities by providing opportunities to work with the system first-hand. The project also developed standard business-to-business interconnection agreements. Awareness of PV systems, operations, and technology increased, and the process for future PV projects was streamlined.

Solar Array Equipment Installed

- 60 British Petroleum 150 watt solar panels,
- 3 SMA Sunny Boy 2500 watt inverters with data controller,
- 2 Wattsun dual axis tracking systems,
- 2 Wattsun single axis tracking systems,
- 4 Fixed rack non-tracking systems, and
- 1 Educational Kiosk.

Cedar Rapids New Bohemia Solar Project Diagram

